Institute of Microelectronics
A*STAR

PRESS RELEASE

A*STAR IME WORKS WITH PIRELLI TO REINVENT THE WHEEL

Singapore, 23 February 2011 — The Institute of Microelectronics (IME), a research institute of the Agency for Science, Technology and Research (A*STAR), today announced that it has developed and successfully demonstrated an Ultra-Wideband (UWB) radio for use in Pirelli's Cyber™ Tyre. Working as part of a sensor node consisting of MEMS accelerometer packaged in a very small form factor, IME's UWB radio allows the tyre to send a wealth of information to the vehicle's control unit in real time. The data received from the tyre allows, among other thing, to measure grip margin, enabling the vehicle control unit to make decisions that greatly enhance driving preventive safety.

The UWB technology was chosen for its low power consumption feature and capability to provide robust communication from the tyre to the control unit. Pirelli, through its design service partner, enlisted the services of IME due to the institute's proven track record of realising low power UWB radios in Radio Frequency Complementary Metal-Oxide Semiconductor (RF CMOS) technology. IME had, for example, published its UWB designs at the prestigious International Solid-State Circuits Conference for three consecutive years.

"IME has risen magnificently to the challenges posed by our bold project, such as severe power constraints, the inescapable rigours of automotive use and a harsh radio environment," said Dr. Marco Sabatini, Head of the Cyber Tyre Technologies Programme. "We appreciate the IME team's flexibility and result-driven attitude that brought us a mature prototype solution ready for industrialisation."

"IME is proud to be part of the visionary team of leaders from academia and industry that have been brought together by Pirelli to literally reinvent the wheel," said Professor Dim-Lee Kwong, Executive Director of IME. "By placing us in the privileged company of an international network of capable partners, the Cyber™ Tyre initiative has spurred us to further advance our work on innovative ultra-low power UWB transceivers — an area which IME has been a trailblazer in since we established a UWB research team in 2004."

About the Institute of Microelectronics (IME)

The Institute of Microelectronics (IME) is a research institute of the Science and Engineering Research Council of the Agency for Science, Technology and Research (A*STAR). Positioned to bridge the R&D between academia and industry, IME's mission is to add value to Singapore's semiconductor industry by developing strategic competencies, innovative technologies and intellectual property; enabling enterprises to be technologically

competitive; and cultivating a technology talent pool to inject new knowledge to the industry. Its key research areas are in integrated circuits design, advanced packaging, bioelectronics and medical devices, MEMS, nanoelectronics, and photonics. For more information, visit IME on the Internet: http://www.ime.a-star.edu.sg.

About the Agency for Science, Technology and Research (A*STAR)

The Agency for Science, Technology and Research (A*STAR) is the lead agency for fostering world-class scientific research and talent for a vibrant knowledge-based and innovation-driven Singapore. A*STAR oversees 14 biomedical sciences, and physical sciences and engineering research institutes, and seven consortia & centre, which are located in Biopolis and Fusionopolis, as well as their immediate vicinity.

A*STAR supports Singapore's key economic clusters by providing intellectual, human and industrial capital to its partners in industry. It also supports extramural research in the universities, hospitals, research centres, and with other local and international partners. Please visit www.a-star.edu.sg for more information.

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